Remarks:

Claims 14-25, 27-30, and 42 remain for consideration in this application with claims 14, 19, 27, and 42 being in independent format. Claim 26 has been cancelled and rewritten as new independent claim 42. Claims 14, 19, and 27-29 have been amended to eliminate the structural formula $(CH_3)_3N^+(CH_2)_nCOO^-$. This amendment was made because, once the claim was amended to limit n to 1, the structure was redundant with "glycine betaine." In view of the claims, in combination with the remarks hereunder, the rejections of the Office Action dated December 21, 2006, have been overcome.

Turning now to the Office Action, the Examiner indicated that one of the Other Documents on the PTO Form 1449 had not been considered because no publication date was cited. The publication date of this reference cannot be determined because it was taken from a website. However, Applicant is submitting a PTO Form 1449 along with another reference (Roche EC-Naprosyn® (naproxen delayed-release tablets)) that is dated. This reference contains disclosure that overlaps that of the document that the Examiner did not consider. It is respectfully requested that this document be considered and initialed as considered by the Examiner.

The Examiner also raised an objection because the claim line spacing was too close. The above claims are double-spaced, so this concern should be alleviated with this filing.

Claim 29 was rejected under 35 U.S.C. § 112, second paragraph, due to the phrase "between about." This claim has been amended to eliminate the use of "between." It is believed that this amendment has overcome this rejection.

It is noted with appreciation that the Examiner has not raised any prior art rejections against claim 26, which recites that the system is adapted for controlling the release of the active compound for at least 2160 minutes. The Applicant has rewritten claim 26 in independent format to include the limitations of claim 19, from which claim 26 depended. This claim corresponds to new claim 42, which should be in condition for allowance.

Turning now to the prior art rejection, claims 14-25 and 27-30 were rejected in view of the combined teachings of U.S. Patent No. 6,287,765 and Publication No. 2002/0034757, both to Cubicciotti. The Examiner combined the teachings of the Cubicciotti references with those of U.S. Patent Nos. 5,928,195 to Malamud et al.; 6,399,785 to Murphy et al.; and 6,355,166 to Amarasinghe et al.

It is noted that the Amarasinghe et al. patent does not even remotely relate to the present technology. Rather, Amarasinghe et al. are concerned with magnetically enhanced composite materials that can be used to improve fuel cells, material separators, and other applications. The Applicant cannot locate any section of the office action that references this patent other on page 4 of the Office Action where the rejection was initially set forth. In light of the above, it is assumed that the inclusion of this reference in that paragraph was due to an error. If the Applicant's belief is incorrect, or if the Applicant has missed a further mention of the Amarasinghe et al. patent in the Office Action, it is requested that the Examiner contact the undersigned to clarify this citation.

To establish a *prima facie* case of obviousness, the prior art references, either alone or in combination, must teach or suggest all of the claim limitations. M.P.E.P. § 2142. The Examiner must also identify a reason that would have prompted a person of ordinary skill in the art to combine

the prior art elements in the manner claimed. *See KSR Int'l Co. v. Teleflex Inc.*, No. 04-1350, 2007 WL 1237837 at *14, 82 U.S.P.Q.2d 1385 (S. Ct. April 30, 2007). Mere conclusory statements cannot sustain an obviousness rejection; there must be "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006), *cited with approval in KSR*, 2007 WL 123837 at *13.

The primary references (the Cubicciotti references) cited by the Examiner do not teach or suggest the use of glycine betaine or even any betaine derivative, as conceded by the Examiner at the bottom of page 6 of the Office Action. Rather, the Examiner cited the Cubicciotti references for their alleged teachings of drug delivery systems, and then points to the Malamud et al. and Murphy et al. patents to supplement this significant shortcoming in the teachings of the Cubicciotti references.

The Applicant submits that the art of record does not teach or suggest the claimed controlled release system that comprises glycine betaine as is required to establish a *prima facie* case of obviousness. The Examiner points to column 5, lines 38 and 45 of Malamud et al. for the alleged teaching of "betaine or a betaine derivative and glycine derivative." The Applicant respectfully disagrees with the characterization of this teaching.

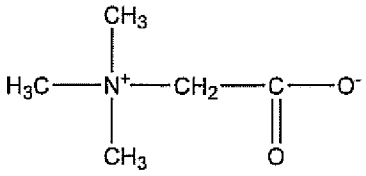
According to the Examiner, it would have been obvious to use glycine betaine with a controlled release system. The Examiner, however, has not identified any reason to combine these two teachings, nor is there anything in either reference to enable the use of glycine betaine in a controlled release pharmaceutical system as claimed. Rather, it appears that the requisite reasoning is being gleaned, impermissibly, from Applicant's own disclosure through hindsight reconstruction.

The Applicant submits that based upon the prior art disclosures, there would be no "apparent reason" for a person of ordinary skill in the art to modify the references to achieve the presently claimed invention. *See KSR*, 2007 WL 1237837 at *13. Without this "apparent reason," a *prima facie* case of obviousness cannot be made.

Column 5, line 38 of Malamud et al. references an "alkyl-*N*-betaine surfactant," while column 5, line 45 references an "alkyl dimethyl glycine." Referring first to the disclosure of an "alkyl-*N*-betaine surfactant," the Examiner's attention is directed to attached Exhibit A, which was obtained by the Applicant from the website of the Danish Ministry of Environment. Exhibit A states:

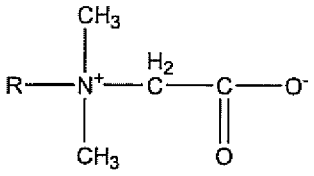
> Betaines are primarily used in personal care products like, e.g., hair shampoos, liquid soaps, and cleansing lotions. Other applications include all-purpose cleaning agents, hand dishwashing agents, and special textile detergents. All betaines are characterized by a fully quarternized nitrogen. In alkyl betaines, one of the methyl groups in the 'betaine' structure (*N,N,N*-trimethylglycine) is replaced by a linear alkyl chain.

(Emphasis added) The structure of glycine betaine is:

(I) 

Thus, it is clear that an "alkyl-*N*-betaine surfactant" as taught by Malamud et al. would not be the same as the structure (I) because one of the $-CH_3$ groups in the above structure (I) would be replaced with an alkyl chain in the Malamud et al. structure.

This is further supported by checking the three U.S. Patents (4,107,328; 4,839,158; and 5,314,917) cited and incorporated by reference in column 5, lines 41-42 of Malamud et al. These three patents teach the following structure:



where R is a higher alkyl having from 10 to 18 carbon atoms. (See column 2, lines 23-33 of 4,107,328; column 2, lines 13-49 of 4,839,158; and column 4, line 48 to column 5 line 19 of 5,314,917.) Again, one of the methyl groups is replaced by a higher alkyl chain.

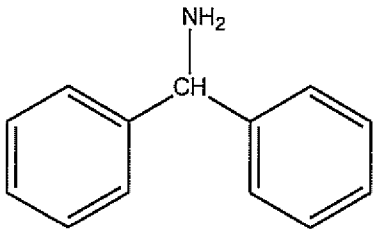
Referring now to the disclosure of "alkyl dimethyl glycine" as referenced by the Examiner (citing column 5, line 45 of Malamud et al.), it is important to read these three words in the context of the entire sentence in which they are found. This sentence states, "The preferred compound within this class is known as "C31G" and contains alkyl dimethyl glycine and alkyl dimethyl amine oxide." Exhibit B was obtained by the Applicant from the website of the National Institute of Allergy and Infectious Diseases, and it provides the structure of "C31G." Clearly, C31G would also include a higher alkyl chain in lieu of a methyl group as discussed above with respect to structure (I).

So, not only is the methyl group present in the claimed glycine betaine much different from the alkyl-*N*-betaine surfactant and alkyl dimethyl glycine taught by Malamud et al., it would not be obvious to alter these two prior art teachings to include a methyl group rather than a higher alkyl chain. It is well known that if a "proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." M.P.E.P. § 2143.01, citing *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). The Applicant submits that there would be no motivation or suggestion to modify the teachings of the Malamud et al. patent to include a methyl group rather than a higher alkyl chain, because this would render the Malamud et al. device and the drug it delivers unsatisfactory for its intended purpose. That is, the paragraph in Malamud et al. referenced by the Examiner makes it abundantly clear that the intended purpose of the Malamud et al. device is to deliver a drug with spermicidal, antiviral, antibacterial, and antifungal activities. This makes sense when one considers that C31G is their preferred drug (see Exhibits C and D, which describe the anti-microbial and spermicidal characteristics of C31G). Such properties would not be achieved with glycine betaine. Rather, glycine betaine exhibits the following characteristics: (1) it has protective effects on spermatozoa; (2) it favors bacterial growth, and bacteria avidly uptake glycine betaine to protect themselves; and (3) it favors fungal growth and the development of yeast. Exhibits E-K are attached as evidence to support these glycine betaine characteristics. Accordingly, there can be no motivation to make the proposed modifications to Malamud et al. as it would render that device and drug unsatisfactory for its intended purpose, and the teachings of this reference are insufficient to render the present claims obvious. *See* M.P.E.P. 2143.01.

The citation of the Murphy et al. patent to supplement the Cubicciotti references is even more tenuous than the citation of the Malamud et al. patent. The Applicant conducted an electronic word search for "betaine," using an electronic copy of the patent downloaded from the USPTO website. There were zero occurrences of "betaine" in the Murphy et al. patent.

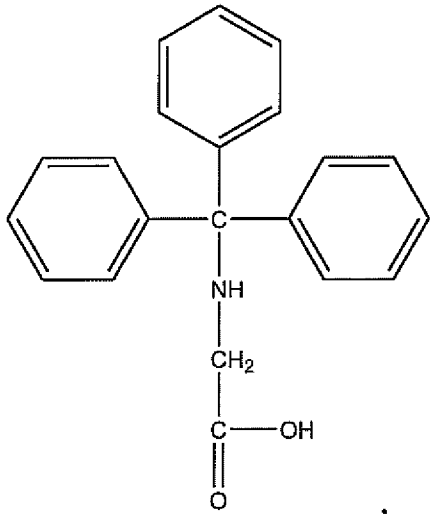
The Examiner cited column 28, lines 1-18, but the Applicant can find no reference of "glycine and/or derivatives" as alleged by the Examiner in the first paragraph on page 8 of the Office Action. Thus, the Applicant also conducted an electronic word search for "glycine." The first occurrence discussed the use of *N*-aryl glycines as precursor compounds. "Aryl" refers to "a compound whose molecules have the ring structure characteristic of benzene, naphthalene, phenanthrene, anthracen, etc." *Hawley's Condensed Chemical Dictionary*, thirteenth ed. Thus, *N*-aryl glycines clearly include a ringed structure, which is completely different from glycine betaine.

The second occurrence describes *N*-linking of benzhydralamine (which should be spelled benzhydrylamine) resin with glycine. The structure of benzhydrylamine is:



(see http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?cid=7036) Again, this teaches a ringed structure, and glycine betaine is not a ringed structure.

The third and final occurrence discusses the synthesis of *N*-tritylglycine, and the subsequent use of *N*-tritylglycine to synthesize N-triphenylmethyloxazolidone. *N*-tritylglycine has the following structure:



(See http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?cid=248898) Yet again, this teaches a ringed structure, and glycine betaine is not a ringed structure.

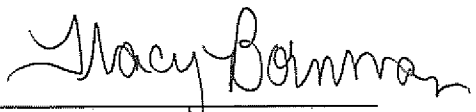
There is simply no way that one having ordinary skill in the art would look to these teachings and come up with glycine betaines and the controlled delivery thereof. The above "glycine derivatives" are too remote from glycine betaine. There is no "apparent reason" for one of ordinary skill in the art to make this leap and replace the above ringed structures with a completely different, ringless structure. The Applicant respectfully submits this is improper use of hindsight reconstruction as well.

In light of the foregoing, it is believed that independent claims 14, 19, and 27 are patentable over the art of record, and it is requested that the rejections against these claims be withdrawn.

In addition, while dependent claims 15-18, 20-25, and 28-30 recite additional patentable features, these claims should also be in condition for allowance, as depending from patentable independent claims. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

In view of the foregoing, it is believed that no further issues exist with respect to this application. The Applicant respectfully requests a Notice of Allowance. Any additional fees due in conjunction with this amendment should be applied against our Deposit Account No. 19-0522.

Respectfully submitted,

By 

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